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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/768,720	01/24/2001	Junichi Kugimiya	FUJZ 18.251	1218

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EXAMINER	
MATTIS, JASON E	
ART UNIT	**PAPER NUMBER**
2665	

DATE MAILED: 03/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/768,720	KUGIMIYA ET AL.	
	Examiner	Art Unit	
	Jason E Mattis	2665	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 October 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This Office Action is in response to the Amendment filed on 10/25/04. Claims 1-8 are currently pending in the application.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-3 and 7-8 are rejected under 35 U.S.C. 102(e) as being anticipated by Wallner et al. (U.S. Pat. 6442172).

With respect to claim 1, Wallner et al. discloses a traffic control apparatus **(See column 4 lines 20-36 and Figure 2 of Wallner et al. for reference to a digital traffic switch, which is a traffic control apparatus)**. Wallner et al. also discloses a transmission demand generator for generating a transmission demand signal at a predetermined intervals set respectively for each channel **(See column 8 lines 11-24 and item 326 Figure 3 of Wallner et al. for reference to grants, which are transmission demand signals, being issued at predetermined intervals to a**

logical output queue in a grant generation algorithm conducted by each output data flow control unit 326). Wallner et al. further discloses a transmission demand counter for counting a generation number of the transmission demand signal for each channel **(See column 8 lines 34-59 of Wallner et al. for reference to grant counters that store a count of the number of outstanding grants to count various categories of outstand grants for each channel)**. Wallner et al. also discloses a priority ranking determining portion for determining a transmission priority ranking for each channel based on a value of the transmission demand counter **(See column 8 line 60 to column 10 line 65 and Figures 4-6 of Wallner et al. for reference to determining which current queue has the highest priority using the grant counters as a part of the decision process as shown in Figures 4-6)**. Wallner et al. further discloses transmitting a highest priority channel designation signal which designates a transmission of a predetermined unit data length of a highest priority channel **(See column 10 lines 43-65 and Figure 6 of Wallner et al. for reference to transmitting an information unit, ATM cell, of the highest priority queue in response to signaling as shown in step 721)**. Wallner et al. also discloses a signal that decrements the transmission demand counter corresponding to the highest priority channel **(See column 8 lines 11-24 of Wallner et al. for reference to grants being "taken-down", or decremented, whenever a discrete information unit from the logic output queue, which is the highest priority queue, has arrived at the output rate buffer)**.

With respect to claim 2, Wallner et al, discloses that the transmission demand generator generates the transmission demand signal as a transmission demand signal of fixed length data at intervals corresponding to a transmission rate of each channel **(See column 8 line 60 to column 10 line 22 and Figures 4-5 of Wallner et al. for reference to grant signals being generated for data units, which are fixed length ATM cells, at intervals spaced apart by some time according to the transmission rate of the queues, channels)**. Wallner et al. also discloses that the priority ranking determination portion transmits the highest priority channel designation signal as a signal for designating a fixed length data transmission of the highest priority channel **(See column 10 lines 43-65 and Figure 6 of Wallner et al. for reference to transmitting an information unit, ATM cell that has fixed length data, of the highest priority queue in response to signaling as shown in step 721)**.

With respect to claim 3, Wallner et al. discloses that the priority determination portion makes a last highest priority channel a lowest priority channel the channels whose transmission demand counter values are not "0" and determines the highest priority channel by a round-robin method in which the highest priority channel is sequentially and recursively selected **(See column 10 lines 43-55 and Figure 6 of Wallner et al. for reference to the recursive algorithm used to make priority determinations selecting the next destination IOP in a round-robin order each time a unit is be transmitted, and since only queues with a non-zero grant count are considered, the previous destination IOP is effectively the lowest priority channel among those with a grant counter values that are not 0)**.

With respect to claim 7, Wallner et al. discloses that the priority ranking determination portion performs weighting to the value of the transmission demand counter to determine the transmission priority of each channel **(See column 8 lines 34-59 and column 9 lines 23-59 of Wallner et al. for reference to the priority decision making method including a limit on the amount of grants allowed for each queue with the limit being different for different priority queues, which means that the priority ranking is weighted by these grant limits on the grant counters, for example, a higher priority queue will be allowed to have more grants in a given time that a lower priority queue)**.

With respect to claim 8, Wallner et al. discloses that the intervals of transmission demand signals for each channel are set so that a total number of transmission rates corresponding to the predetermined intervals set for each channel does not exceed a maximum transmission rate which can be transmitted by at least one of a transmission line and a virtual path including the channel **(See column 10 lines 23-42 of Wallner et al. for reference to the transmission of information units being spaced apart by some minimum time so that the transmission rate does not exceed a maximum transmission late that can be handled)**.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 4-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wallner et al. in view of Moss (U.S. Pat. 6469484).

With respect to claim 4, Wallner et al. does not disclose a first priority encoder which makes channels whose transmission values are not "0" valid channels an outputs a minimum channel number selected from the value channels, or outputs an invalid signal in the absence of the valid channels. Wallner et al. also does not disclose a second priority encoder which masks channels whose number are under M, the current priority channel, and outputs a minimum channel number selected from the valid channels and outputs an invalid signal in the absence of the valid channel signal. Wallner et al. further does not disclose outputting the value of the second priority encoder if the output is valid, outputting the value of the first priority channel if the output of the second priority channel is invalid, and outputting an invalid signal if the outputs of both the first and second priority encoders are invalid. Wallner et al. also does not disclose an adder, which makes the highest priority channel plus one the next highest priority channel.

With respect to claim 5, Wallner et al. does not disclose that the first and second priority encoders are composed of a single priority encoder. Wallner et al. also does not disclose a time generator and a storage portion, which stores an output result of the priority encoder to be provided to the determination portion.

Moss in the field of communications, discloses second priority encoder which masks channels whose number are under M, the current priority channel, and outputs a minimum channel number selected from the valid channels and outputs an invalid signal in the absence of the valid channel signal **(See column 6 line 36 to column 7 line 7 and Figures 2 and 6 of Moss for reference to a bit mask to mask out port bits which are less than or equal to the last port index searched and searching for a valid port to transmit among the unmasked port bits)**. Moss also discloses a first priority encoder which makes channels whose transmission values are not "0" valid channels an outputs a minimum channel number selected from the value channels, or outputs an invalid signal in the absence of the valid channels **(See column 6 line 36 to column 7 line 7 for reference to searching by wrapping around until a set bit is found in the absence of a set bit being found among the unmasked bits as previously described)**. Moss further discloses outputting the value of the second priority encoder if the output is valid, outputting the value of the first priority channel if the output of the second priority channel is invalid, and outputting an invalid signal if the outputs of both the first and second priority encoders are invalid **(See column 6 line 36 to column 7 line 7 for reference to outputting the result of the first masked search, if a valid result was found, outputting the result of the second unmasked search, if no valid result was found in the first search)**. Moss also discloses an adder, which makes the highest priority channel plus one the next highest priority channel **(See column 6 line 36 to column 7 line 7 and Figures 2 and 6 of Moss for reference to a bit mask to mask out port bits which are less than or equal to the**

last port index searched, which means there must be some adder that changes the value of the last port index searched each time the process is repeated). Moss further discloses that the first and second priority encoders are composed of a single priority encoder **(See column 4 lines 23-34 of Moss for reference to egress port manager, which is a single priority encoder, supporting the weighted fair scheduler algorithm described above)**. Moss also discloses a time generator and a storage portion, which stores an output result of the priority encoder to be provided to the determination portion **(See column 6 line 33 to column 7 line 40 of Moss for reference to the priority port determination process of Moss resulting in the priority port bit being stored so that the data of that port may be transmitted next)**. Using the weighted fair scheduler system of Moss has the advantage of making sure that a round-robin technique is performed in which all output ports have an equal opportunity to transmit data to reduce the amount of congest that may accumulate at any one output port.

It would have been obvious to one of ordinary skill in the art at the time of the invention, when presented with the work of Moss, to combine the weighted fair scheduler system of Moss with the transmission system and method of Wallner et al., with the motivation being to make sure that a round-robin technique is performed in which all output ports have an equal opportunity to transmit data to reduce the amount of congest that may accumulate at any one output port.

5. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wallner et al. in view of Henrion et al. (U.S. Pat. 6469982).

With respect to claim 6, Wallner et al. does not disclose data comprising variable length data. Wallner et al. does disclose generating the transmission demand signal as a transmission demand signal of a unit data length at predetermined intervals corresponding to transmission rate of each channel **(See column 8 line 60 to column 10 line 22 and Figures 4-5 of Wallner et al. for reference to grant signals being generated for data unit, at intervals spaced apart by some time according to the transmission rate of the queues, channels)**. Wallner et al. also discloses that the priority determination transmits based on the data length of each channel and the value of the transmission demand counter the highest priority channel designation which designates a transmission of a highest priority channel **(See column 10 lines 43-65 and Figure 6 of Wallner et al. for reference to transmitting an information unit of the highest priority queue based on the grant counters and the data length of the cells in response to signaling as shown in step 721)**. Wallner et al. further discloses a signal which designates a subtraction of only a numerical value corresponding the a length of transmitted value length data from the transmission demand counter corresponding to the highest priority channel **(See column 8 lines 11-24 of Wallner et al. for reference to grants being "taken-down", or decremented, whenever a discrete information unit from the logic output queue, which is the highest priority queue, has arrived at the output rate buffer)**.

Henrion et al., in the field of communications, discloses data comprising variable length data being transmitted from a queue using a round-robin technique **(See column 5 liens 13-19 of Henrion et al. for reference to extending a packet transmission system to support variable length packets)**. Extending a packet transmission system to support variable length packets has the advantage of allowing a transmission system to support a protocol that uses variable length data as well as protocols that use fixed length data.

It would have been obvious to one of ordinary skill in the art at the time of the invention, when presented with the work of Henrion et al., to combine the use of data comprising variable length data, as suggested by Henrion et al., with the transmission system and method of Wallner et al., with the motivation being to allow a transmission system to support a protocol that uses variable length data as well as protocols that use fixed length data.

Response to Arguments

6. Applicants' arguments filed 10/25/04 have been fully considered but they are not persuasive.

In response to the Applicants' argument that:

> "Therefore, the predetermined time interval of Wallner is not respectively set for each channel. Namely, Wallner fail to disclose the "transmission demand generator for generating a transmission demand signal at

predetermined intervals respectively set for each channel." (See page 6 of Applicants' Remarks)

the Examiner respectfully disagrees. Although it is true that the transmission demand generator, output data flow control unit 326, of Wallner et al. does use the same predetermined time interval to generate a grant for each of the output channels, this does not mean that the time interval is "not respectively set for each channel". The time interval is set respectfully for each channel at the rate indicated by the grant engine time. There is no limitation in Claim 1 that precludes the predetermined time intervals set respectively for each channel from being the same predetermined time interval for each channel. Therefore, the grant engine timer expiration time of Wallner et al. generates a demand signal at predetermined intervals set respectively for each channel, as claimed.

In response to Applicants' argument that:

"Additionally, although a priority of data (current priority) is referred to in Steps 501, 503, and 505 of Fig. 5, this priority is unrelated to the value of the transmission demand counter as recited in applicant's claim 1. Therefore, Wallner fail to disclose "a transmission priority ranking determined based on a value of the transmission demand counter"." (See page 6 of Applicants' Remarks)

the Examiner respectfully disagrees. The limitations of Claim 1 include a priority ranking portion that ranks priority for each channel based on a value of the demand counter and then transmits a highest priority channel designation signal which

designates a transmission of data of a highest priority channel. Wallner et al. discloses an apparatus that includes all the claimed limitations. Wallner et al. discloses that before a grant is issued to a specific channel, it must be determined if the given channel is of the highest priority. This is accomplished by first determining the next round robin source with highest priority (See step 409 in Figure 4 of Wallner et al.). At this point, a grant is not issued yet. Next, the algorithm proceeds to the paths 510, 520, or 530 in Figure 5 of Wallner et al. where it is determined, based on the current level of the grant counter for the highest priority source, whether a grant is to be issued or not. The source with the highest priority is only issued a grant if a threshold limitation of the grant counter is not exceeded. If the threshold is exceeded, the currently highest priority source is not issued a grant and is not the highest priority source. The process of Wallner et al. then proceeds to the next highest priority source, making this next source the new highest priority source. Therefore, the source, that is eventually issued the next grant, has a highest priority that is based on the value of the grant counter. Since the grant counter is used as a factor in determining the source receiving the next grant, Wallner et al. does disclose the claimed "transmission priority ranking determined based on a value of the transmission demand counter".

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason E Mattis whose telephone number is (571) 272-3154. The examiner can normally be reached on M-F 8AM-4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu can be reached on (571) 272-3155. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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